

CONFERENCE PROCEEDINGS

ICBMB 2016

International Conference on
Biochemistry and Molecular Biology
27-29 April 2016,
Venice, Italy

ISBN-13: 978-1530914227

ISBN-10: 1530914221

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**International Conference on
Biochemistry and Molecular Biology**

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Best Western Hotel Bologna
Hall Tercicore

Via Piave, 214, 30171 Venezia Mestre, Venezia
VE, Italy

Features of miRNA binding sites in mRNAs of *Bos taurus* ZNF family transcription factors

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Abstract:

miRNA binding sites in the mRNA nucleotide sequences of 247 transcription factor (TF) genes of *Bos taurus* ZNF family was established. miRNAs binding sites are located in the 5'UTRs, CDSs and 3'UTRs of mRNAs. miRNA binding sites in mRNAs were selected with the value $\Delta G/\Delta G_m$ equal or greater than 85%. miR-574 was identified from 749 *Bos taurus* miRNAs, it has binding sites with mRNAs of *KLF7*, *SNAI2*, *WIZ*, *ZFP1*, *ZFP91-1*, *ZNF175*, *ZNF6772*, *ZSCAN29-1* genes. The value $\Delta G/\Delta G_m$ varied from 85 to 95%. The starts of miR-574 binding sites with mRNAs of *KLF7*, *ZFP91-1*, *ZNF6772* genes are located through two nucleotides. miR-574 binding sites are located in the 3'UTR. miR-1260b has binding sites with mRNAs of 29 genes (*BCL11B-1*, *CTCF-1*, *DPF2-1*, *EGR3*, *FEZF2*, *PRDM13*, *PRDM14*, *PRDM6*, *SALL1*, *SP6-2*, *SP8*, *WIZ*, *ZFX-1*, *ZFX-2*, *ZKSCAN1*, *ZNF219*, *ZNF335*, *ZNF341*, *ZNF384*, *ZNF48*, *ZNF513*, *ZNF618-1*, *ZNF653*, *ZNF668*, *ZNF746*, *ZNF75*, *ZNF805*, *ZNF774*, *ZSCAN20-1*) which are located in the 3'UTRs, CDSs and 5'UTRs. The value $\Delta G/\Delta G_m$ varied from 85 to 91%. The starts of miR-1260b binding sites in mRNAs of *ZNF618-1* target gene are located through one nucleotide in the 5'UTR and with mRNAs of *ZNF384*, *BCL11B-1* genes through three nucleotides in the CDSs. We found miR-2881, miR-2882, miR-2885, miR-3141 and miR-6528 binding sites in the nucleotide sequences of mRNAs of 27, 17, 23, 40 and 21 target genes, respectively. The value $\Delta G/\Delta G_m$ for these miRNAs varied from 85 to 96%. We also established binding sites for families of miRNAs: miR-1777 (miR-1777a, miR-1777b), miR-2284 (miR-2284aa, miR-2284b, miR-2284c, miR-2284f, miR-2284h-5p, miR-2284i, miR-2284l, miR-2284m, miR-2284o, miR-2284p, miR-2284s, miR-2284v, miR-2284z), miR-2285 (miR-2285ae, miR-2285af, miR-2285g, miR-2285o, miR-2285p, miR-2285q, miR-2285, miR-2285w, miR-2285y) and miR-2325 (miR-2325a, miR-2325c) with mRNAs of *Bos taurus* ZNF family TF genes.

Keywords: miRNA, mRNA, transcription factor, ZNF